

Jack Chalon, M.D.
Department of Anesthesiology
New York University Medical Center
School of Medicine
550 First Avenue
New York, New York 10016

Changes in Tracheobronchial Cytology.

The objectives of this investigation are:

- (1) The correlation of preoperative lung functions, intraoperative tracheobronchial cytology and postoperative pulmonary complication rate, to see how effective cytology is in predicting lung damage in smokers.
- (2) The correlation of tracheobronchial cytologic changes related to female sex hormone blood levels with the morphologic integrity of ciliated cells to assess the degree of protection afforded by hormones against damage caused by smoking.
- (3) The discovery of cytologic changes associated with malignancy for the diagnosis of bronchogenic carcinoma, and in order to learn the effects of extrapulmonary malignancies on tracheobronchial epithelium.

The following procedure will be used:

- (1) Collection of tracheobronchial smears from patients undergoing general anesthesia for surgery.
- (2) Scoring of damage to the ciliated cells by a point system in nonsmokers and various smoking categories.
- (3) Scoring of changes in the ciliated cells induced by variations in blood levels of circulating sex hormones and the correlation of results obtained from the above.
- (4) Assessment of preoperative lung functions (PEFR, FEV₁ and FEV₃) in nonsmokers and smokers and correlation with results obtained in (2) above with postoperative complication rate and with lung function tests.

Current plans are to continue all previous studies and to try and explain the results obtained by (1) cell cultures, (2) chemical changes discovered in the serum of patients concerned, and (3) biochemical analysis of the changes noted.

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